U.S.-China Water Resources Management Workshop
April 18-22, 1999
Tucson, Arizona

JOINT REPORT

The United States and the People's Republic of China held a Joint Workshop on Water Resources Management from April 18-22, 1999, in Tucson, Arizona, U.S.A.

The Workshop is intended to be the first step in a bilateral water resources management program. The program was recommended and agreed to by the U.S.-China Forum on Environment and Development co-chaired by Vice President Al Gore and Premier Zhu Rongji. At the first meeting of the Forum in March 1997 in Beijing, the four working groups on Energy Policy, Environmental Policy, Science for Sustainable Development, and Commercial Cooperation identified water resources management as a significant issue requiring action in both countries. They noted that the issue is a critical matter for sustainable development and recommended it as an area for possible expanded collaborative activity between the United States and China. The water program was also highlighted and reaffirmed at the second meeting of the Forum held in April 1999 in Washington, D.C. Water resources were additionally an important topic of discussion at the highly successfully U.S.-China Workshop on Natural Disasters Reduction and Mitigation held in November 1997 in Beijing.

Water resources issues are gaining increasing attention and priority globally as well as in the United States and China. During the Workshop, it was noted that although 75% of the earth's surface is covered by water, almost all of that is salt water in the oceans or locked in the polar ice caps. Only a small percentage of fresh water is available for drinking, to support agriculture, and to contribute to economic growth.

It is widely recognized that water shapes civilizations and sustains all human, animal and plant life. No issue illustrates the difficulties of sustainable development more than effective, sustainable management of water resources. Economic growth and the well being of the world's people are fundamentally linked to this limited natural resource. Population expansion and rapid economic development, particularly industrialization and urbanization, increasingly demand more water resources and endanger water quantity and quality. The U.S. and China face similar problems regarding uneven spatial and temporal distribution of water resources that further complicate the ability to plan and manage these resources. For example, both the U.S. and China suffered from the effects of the 1998-1999 El Nino phenomenon that was the strongest on record and caused floods, droughts and other severe weather events.

Dr. Neal Lane, Assistant to the President for Science and Technology, Vice Minister Hui Yongzheng of the Ministry of Science and Technology, Under Secretary I. Miley Gonzalez of the U.S. Department of Agriculture, and Vice Minister Zhang Chunyuan of the Ministry of Water Resources provided opening and welcoming statements. The opening plenary session of the Workshop identified the challenges the two countries face and the opportunities each share for effectively managing their respective water resources. It was stated that primary issues of water resources management are quantity and quality, including floods, water scarcity and allocations, soil erosion, water pollution and degradation, and loss of natural ecosystem functioning. It was noted that these water resources management issues are pervasive in all aspects of society and economy. It was suggested that these problems may best be addressed through joint cooperation that considers the political, legal, social, economic, scientific and technical issues, and policies required to create a sustainable program of water resources management for agricultural, municipal and industrial water use. This would include specific projects on water resource policy making, cross-sectoral innovation, key technologies in water industries and water conservation, treatment and reuse of wastewater, ecology and environmental protection, and erosion and sedimentation control. Additional projects on water resource assessment and planning for river basins adaptive management, drought and flood control and disaster mitigation, exploration of water energy, and other areas would be similarly beneficial. There was a significant emphasis on integration across these policy and utilization issues, including cross-organization and cross-sectoral coordination.

Early in the planning of the Workshop, it was agreed that participants should examine water resources management at the river basin level to emphasize the importance of integrating often disparate requirements for water resources management in an integrated way. Valuable and in-depth presentations on major river systems in the U.S. and in China were made by experts from each country. To emphasize the similarities of the challenges faced by both countries, two river systems were chosen by each country, and paired with a relatively similar system from the other. Presentations were given on the Yangtze and the Mississippi, and the Yellow and Rio Grande rivers.

During the Workshop, concurrent working group sessions considered water resources issues in the context of agriculture and forestry, ecology, domestic and industrial water use and waste water, and flood and drought planning and mitigation. Detailed discussions were held on soil erosion and sedimentation issues, water conservation in agriculture, ecological research and restoration, natural resources valuation, adaptive management, conservation and recovery matters, regulatory issues of domestic and industrial water management, and flood and drought modeling, forecasting, planning, prevention, control and mitigation. Land use regulation and management, and water control and quality issues were considered in depth, including irrigation, salinization,

pollution prevention, control and treatment, and watershed experiments and modeling at the regional and national scales. Flood plain zoning and insurance matters were considered, as well as watershed research, dryland farming, and the impact of climate change and variability on water resources. Issues associated with wetlands, coastal waters, and other ecosystems and habitats were examined, along with application of geographic information systems and area wide monitoring. Food production matters, including water utilization efficiency improvements and cloud seeding were considered, as well as financing of municipal water projects and other technology matters. Needs for improved prediction, assessment and monitoring were identified with special consideration given to the potential impacts of climate variability on water resources.

Participants visited two very interesting local water resources management projects: the Walnut Gulch Watershed and the Semi-Arid Land-Surface Atmosphere Program (SALSA), and the University of Arizona Maricopa Agricultural Center and Valmont Irrigation Site. Dr. Soroosh Sorooshian of the University of Arizona provided a keynote presentation on perspectives on impacts of climate change and variability on global water resources. Workshop attendees also received an address by U.S. Senator Max Baucus of Montana, who noted the importance of water resources management and environmental protection to economic development and food security in both countries. Senator Baucus expressed his interest in hearing of the results of the Workshop discussions.

The Workshop provided a forum for discussion among nearly 200 government, academic, non-governmental and business sector representatives to identify potential elements of a coordinated program on sustainable water resources management between the U.S. and China. Potential future activities examined included coordination of participants responsible for water resources management issues, comparison of approaches to such issues, exploration of jointly funded research on broad water resource issues and energy projects to demonstrate application of selected technical approaches and to develop databases necessary for regional and national water resources assessments. Joint involvement of the business community and global financial institutions to promote technological approaches to water resources management issues was also considered.

Workshop participants agreed to a prioritized list of areas and projects for action. They noted their intention to report their findings to the Vice President and Premier through the Forum, as well as to the U.S.-China Joint Commission on Science and Technology Cooperation and the U.S.-China Joint Commission on Commerce and Trade. These recommendations include several key themes for future bilateral cooperation, including exchanges and training of personnel engaged in the management of water resources, exchange of experts and implementation of research and studies on water resources management issues, and facilitation of commercial opportunities related to water resources management. Toward this end, the two sides agreed to recommend that

the U.S. and China establish a Water Resources Management Working Group under the U.S.-China Joint Commission on Science and Technology Cooperation to serve as a mechanism for broader collaboration involving a comprehensive array of ministries, agencies and organizations from both countries.